

WHAT IS CLAIMED IS:

1. A display apparatus of the type which forms a color image by modulating a plurality of lights different from each other in color by one or a plurality of display elements, the display apparatus comprising means for obtaining a plurality of different display forms by changing the color purity of at least one of said plurality of colors, and means for supplying information on the display forms.

2. A display apparatus of the type which forms a color image by modulating a plurality of lights different from each other in color by one or a plurality of display elements, the display apparatus comprising means for changing the color purity of at least one of said plurality of lights by inserting or extracting a wavelength selection element into or out of the optical path of at least one of said plurality of lights or changing the attitude of the wavelength selection element, and means for supplying information as to whether the wavelength selection element is in the optical path of said at least one color light or information on the attitude of the wavelength selection element in the optical path of said at least one color light.

3. A display apparatus according to Claim 2, wherein

said means for supplying information includes a display means formed by an LED, a liquid crystal device, etc.

4. A display apparatus of the type which forms an image by modulating light by one or a plurality of display elements, said display apparatus comprising cooling means for cooling the display elements, the cooling means being capable of varying its cooling capacity according to variation in the display form of the image.

5. A display apparatus of the type which forms an image by modulating light by one or a plurality of display elements, said display apparatus comprising cooling means for cooling the display elements and means for varying the quantity of light impinging on one or a plurality of said display elements, wherein the cooling capacity of the cooling means with respect to one or a plurality of said display elements is varied according to variation in the quantity of light.

6. A display apparatus of the type which forms a color image by modulating a plurality of lights different from each other in color by one or a plurality of display elements, the display apparatus comprising cooling means for cooling the display elements and means for obtaining a

plurality of display forms by changing the color purity of at least one of said plurality of lights, wherein the cooling capacity of the cooling means is varied with respect to the display elements modulating said at least one of said plurality of lights according to variation in the color purity of at least one of said plurality of lights.

7. A display apparatus of the type which forms a color image by modulating a plurality of lights different from each other in color by one or a plurality of display elements, the display apparatus comprising cooling means for cooling the display elements and means for varying the color purity of said at least one light by inserting or removing a wavelength selection element in or from the optical path of at least one of said plurality of lights or varying the attitude of the wavelength selection element, wherein the cooling capacity of the cooling means with respect to the display elements modulating said at least one light is varied according as whether the wavelength selection element is in the optical path of said at least one light or not or according to variation in the attitude of the wavelength selection element in the optical path of said at least one light.

8. A display apparatus according to one of Claims 3, 4,

5, 6 and 7, wherein the cooling means is an air cooling type cooling means, the variation in the cooling capacity being variation in air flow rate with respect to the display element.

9. A display apparatus according to one of Claims 3, 4, 5, 6 and 7, wherein the cooling means is a water cooling type cooling means, the variation in the cooling capacity being variation in flow rate with respect to the display element.

10. A display apparatus of the type which forms a color image by modulating a plurality of lights different from each other in color by one or a plurality of display elements, the display apparatus comprising air-cooling means for air-cooling the display elements, means for varying the color purity of said at least one light by inserting or removing a wavelength selection element in or from the optical path of at least one of said plurality of lights or varying the attitude of the wavelength selection element, and means for supplying information on the position or the attitude of the wavelength selection element with respect to the optical path of said at least one light, wherein the air flow rate of the air-cooling means is varied with respect to the display element modulating said at least one light

according as whether the wavelength selection element is in the optical path of said at least one light or not or according to the attitude of the wavelength selection element in the optical path of said at least one light.

11. A display apparatus according to one of Claims 2 and 3, wherein said means for supplying information is provided with means for detecting that the wavelength selection element is in the optical path of said at least one light or that it is in a predetermined attitude and for lighting a lamp.

12. A display apparatus according to one of Claims 2, 3, 7, 10 and 11, wherein the wavelength selection element is an element which transmits visible light of a wavelength longer than a predetermined wavelength and blocks visible light of a wavelength shorter than that or an element which transmits visible light of a wavelength shorter than a predetermined wavelength and blocks visible light of a wavelength longer than that.

13. A display apparatus according to one of Claims 2, 3, 7, 10 and 11, wherein the wavelength selection element is an edge filter, a band pass filter or a band cut filter.

14. A display apparatus according to one of Claims 1 through 13, further comprising a plurality of dichroic mirrors separating white light from a light source into said plurality of lights of different colors consisting of red, green and blue lights.

15. A display apparatus according to Claim 14, wherein the display elements are arranged in correspondence with the red, green and blue lights, and wherein there are provided a plurality of dichroic mirrors for synthesizing image light from a plurality of display elements modulating the red, green and blue lights.

16. A display apparatus according to Claim 14, wherein a display apparatus wherein said display elements include three pixel groups respectively corresponding to the red, green and blue lights and micro lens arrays condensing lights of colors corresponding to the three pixels of each group.

17. A display apparatus according to one of Claims 1 through 16, further comprising a projection lens for projecting the image of the display portions of the display elements onto a screen, a wall or the like.

18. A projection type display apparatus comprising image display elements, a light source for illuminating the image display elements, at least one first optical element for color-separating the light from the light source into at least two color lights and causing them to impinge upon the image display elements, at least one second optical element for synthesizing the lights output from the image display elements into one, and a lens upon which the light from the second optical element impinges and which projects the image displayed by the image display elements in an enlarged state, wherein a third optical element which transmits visible light of a wavelength longer than a predetermined wavelength and blocks visible light of a wavelength shorter than that or vice versa, can be inserted or removed in or from the optical path between the first optical element and the second optical element, and wherein there is provided a means for supplying information as to whether the third optical element is in the optical path or not.

19. A projection type display apparatus according to Claim 18, wherein the means for supplying information as to whether the third optical element is in the optical path or not consists of a means for detecting that the third optical element is in the optical path and indicating this by an indicating lamp.

20. A projection type display apparatus comprising image display elements, a light source for illuminating the image display elements, a first optical element for color-separating the light from the light source into at least two color lights and causing them to impinge upon the image display elements, a second optical element for synthesizing the lights output from the image display elements into one, and a lens upon which the light from the second optical element impinges and which projects the image displayed by the image display elements in an enlarged state, wherein a third optical element which transmits visible light of a wavelength longer than a predetermined wavelength and blocks visible light of a wavelength shorter than that or vice versa, can be inserted or removed in or from the optical path between the first optical element and the second optical element, and wherein there is provided a means for changing the cooling condition of the image display elements upon which a larger or smaller quantity of light impinges according as whether the third optical element is in the optical path or not.

21. A projection type display apparatus according to Claim 20, wherein said means for changing the cooling state consists of a means for detecting the third optical element



in the optical path and reducing the air flow rate of the cooling fan as compared to the condition in which the third optical element is not in the optical path.

22. An image processing apparatus comprising a display apparatus as claimed in one of Claims 1 through 21 and a computer for inputting image information to said apparatus.